

REMARKS

Applicant appreciates the Examiner's attention to the above referenced application. Claims 1-20 were rejected. Claims 1, 7, 9, 12, and 19 have been amended. Claims 2, 8, 13, and 20 have been cancelled. Claims 1, 3-7, 9-12, and 14-19 are now pending, of which claims 1, 7, 9, 12, and 19 are independent.

35 USC § 103 Rejection of the Claims

Claims 1-20 were rejected under 35 USC § 103(a) as being unpatentable over Bugnion et al. (US Patent No. 6,075,938) in view of Carrozza et al. (US Patent No. 6,445,685) further in view of Wang (US Patent No. 6,477,612) further in view of Paladini et al. (US Publication No. 2006/0123215). Applicant respectfully traverses this rejection, which should be withdrawn for at least the reasons set forth herein.

The Office Action recognizes that the combination of Bugnion, Carrozza, and Wang fails to teach “the concept of unmapping a buffer space from a first virtual machine and the mapping the same space to a second virtual machine.” (See Office Action dated June 9, 2009, page 4.) The Office Action adds the Paladini reference as purportedly teaching this concept, stating that “Paladini teaches un-mapping a buffer from the virtual address space of the application (unmapping from a first virtual machine) and mapping it back later to a different virtual address (mapping it to a second virtual machine) different from the initial assigned address (see paragraph 58 on page 4).” (See *id.*) Applicants respectfully point out that Paladini is not concerned with virtual machines, and Applicants searched and did not find the term “virtual machine” in the Paladini reference. Applicants respectfully submit that a “virtual address space” is not equivalent to a “virtual machine” and thus that Paladini fails to teach all limitations of claims 1, 7, 9, 12, and 19 for at least this reason. Claims 1, 3-7, 9-12, and 14-19 are therefore allowable for at least this reason.

Even assuming arguendo that a virtual address space could be considered to be the equivalent of a virtual machine, which Applicants have argued is not the case, the Paladini reference does not teach mapping the buffer to a second application's virtual address space.

Applicants respectfully point out that Paladini teaches unmapping a buffer from the virtual address space of an application and then remapping that buffer back into the same virtual address space of the same application, just to a possibly different virtual address. Without a teaching of a mapping to a second virtual address space or second virtual machine, Paladini fails to teach all of the limitations of the independent claims 1, 7, 9, 12, and 19. Claims 1, 3-7, 9-12, and 14-19 are allowable for at least this reason.

Applicants further reiterate the arguments not addressed by the Office Action, where the failure of the Bugnion, Carrozza, and Wang references to teach other claim limitations have not been refuted. The Office Action cites Bugnion column 14, lines 19-30, as teaching “unmapping a guest physical address from a host physical address in at least one page table entry associated with buffers in a DMA table to create unmapped buffers” (See Office Action dated December 19, 2008, page 2. However, Applicants understand Bugnion to involve physical to machine address translations and not buffers mapped within DMA tables. For example, Bugnion column 14 lines 43-54 indicate that DMA requests are intercepted and addresses within the DMA requests are translated into machine addresses, rather than unmapping an address associated with a buffer in a DMA table.

Furthermore, Bugnion does not appear to teach “allocating the at least one of the unmapped buffers to a second VM to create a mapped buffer”; instead, Bugnion appears to teach sharing buffers between virtual machines, as shown by the shared buffer cache of Bugnion Fig. 4. Although Wang is cited as teaching “allocating unmapped buffers to a virtual machine to create a mapped buffer,” Applicant understands Wang to involve mapping and unmapping physical memory pages within a virtual address space region of a specified process, and not the unmapping and remapping of buffers to different virtual machines.

The claim limitation “wherein unmapping the guest physical address from the host physical address further comprises clearing the contents of a physical page associated with the host physical address” previously appeared in canceled claims 2 and 13 and now appears in substantially similar language in each of independent claims 1, 7, 9, 12 and 19. The Office Action cites Bugnion column 14, 19-30, as teaching that all mappings that point to a page be

removed from all processors. The Office Action goes on to conclude that the removal of a mapping that points to a page teaches clearing the contents of a physical page associated with the host physical address. Applicants respectfully disagree. As pointed out above, Bugnion teaches sharing buffers between virtual machines, and therefore clearing a mapping to a page would not necessarily cause the contents of the physical page to be cleared, as clearing the contents may affect another virtual machine that is sharing the buffer.

Because the cited references do not teach the claim limitations either alone or in combination, Applicant respectfully submit that claims 1, 3-7, 9-12, and 14-19 are now in condition for allowance and respectfully requests that claims 1, 3-7, 9-12, and 14-19 be allowed to pass to issuance.

CONCLUSION

Applicant respectfully requests reconsideration in view of the remarks and amendments set forth above. If the Examiner has any questions, the Examiner is encouraged to contact the undersigned at (512) 732-1303. Please charge any shortage of fees in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-0221 and please credit any excess fees to such account.

Respectfully submitted,

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